

REMARKS

Applicant would like to thank the Examiner for the careful consideration given the present application. The application has been carefully reviewed in light of the Office action, and amended as necessary to more clearly and particularly describe the subject matter which applicant regards as the invention.

THE INVENTION

The present invention, as recited in the claim 1 as presently amended, is directed to a measuring machine. A base is provided that slidably supports a movable body. A guide rail is provided on the base and has a guide surface on which the movable body is slidably supported. The movable body is adapted to slide via an air bearing device on the guide surface of the guide rail. The guide rail is monolithically formed with the base, and a coating film for rust prevention is formed on the guide surface. This is very different from the prior art relied upon by the Examiner.

THE REJECTIONS UNDER 35 U.S.C. § 103

Claims 1-2 and 4-9 had been rejected under Section 103(a) as being unpatentable over Matsuda et al. (U.S. Pat. No. 6,513,253) in view of Broghammer (U.S. Pat. No. 6,041,511) and Tano (U.S. Pat. No. 6,427,355). A separate rejection

of claim 3 had been made over the same combination of references. These rejections are respectfully traversed, particularly as applied to the claims as presently amended.

Matsuda et al. is directed to a gauge for a coordinate measuring machine and related method for performing measurement along two machine axes. In the outstanding Office Action, the Examiner reads the "measuring table 3" of Matsuda et al. onto the present "base." The "jig pallet 4" of Matsuda et al. is read onto the present "movable body." However, the Examiner generally refers to Fig. 1 of Matsuda et al. to indicate the present "guide rail" having a "guide surface," as is recited in the present claim 1. Other references are made to suggest other presently-claimed structures of the dependent claims that are allegedly shown in Fig. 1 of Matsuda et al.

Though the Examiner asserts that the basic components of the presently claimed invention are disclosed in Matsuda et al., we respectfully submit that this reference fails to support this assertion. Matsuda et al. includes a three-dimensional portal measuring instrument 2 having a measurement table 3, and a holder body 10 mounted on the measurement table to hold the workpiece (measuring instrument gauge 1). Since grooves are formed on the measurement table 3, it appears that the holder body should be slidably supported by the measurement table (see Fig. 1).

However, it should be carefully noted that Matsuda et al. does not specifically describe the structure for holding the workpiece 1 to the table 3. Only a simple description is provided for holding the measurement instrument gauge 1 to the measurement table 3, i.e. that "the gauge 1... is secured by a mounting jig (mounting fixture) 5 to a jig pallet 4...." (see col. 6, lines 55-59).

From inspection of Matsuda et al., it appears that a plurality of T-slots are formed in the table 3. As found in the McGraw-Hill Dictionary of Scientific and Technical Terms, Fourth Edition, a "T-slot" is "a recessed slot, in the form of an inverted T, in the table of a machine tool, to receive the square head of a T-slot bolt."

In devices that use such T-slots, it is known that a head of such a T-slot bolt can be fitted into a groove on a table, and penetrate through e.g. a jig pallet, and be secured with a nut on the opposite surface. It is clear that Matsuda et al. is also such a device. However, it should be carefully noted that Matsuda et al.'s T-slot is by no means a structure that slidably secures a structure, as required by the present claims, as will be set forth in greater detail below.

It is noted that Matsuda et al. shows three grooves formed on the table. These grooves are not for slidably supporting the jig pallet 4, and may actually interfere with the slidable support. Rather, the grooves receive T-slot bolts that are used to clamp the jig pallet 4 to the table 3.

In this regard, it is noted that intricate relative position adjustment of the three grooves would be required in order to achieve slidable support using all (or even a pair among) the three grooves. Otherwise, a slidable support would "hang up" in the grooves. It can be naturally deduced that Matsuda et al. instead provides three grooves so as to select a desired position at which the jig pallet/workpiece is mounted on the measurement table 3 in accordance with the size or nature of the workpiece (or the jig pallet 4). Therefore, these three grooves of Matsuda et al. are clearly not for enabling slidable support of the workpiece.

In addition to the above, Matsuda et al. discloses a "gantry type movable frame 6 which is supported on opposite sides of the measuring table 3 so as to slide

in the direction X" (see col. 6, lines 60-63). This "direction X" is the same direction as the T-slots formed in the table 3. If the movable frame 6 can be moved in the X direction, it would be redundant to also slide the jig pallet 4 in the same direction. This further demonstrates that Matsuda et al.'s jig pallet 4 is not slidable along the table 3, but rather is clamped in place via the pallet 4 and the T-slot bolts. Even if Matsuda et al.'s jig pallet 4 could somehow be slid, a complicated position calculation would be required for precisely detecting the relative position between sensors carried on the movable frame 6 and the jig pallet 4. Such features are clearly not disclosed or even suggested by the Matsuda et al. reference. Indeed, it is clear that Matsuda et al. actually teaches away from the presently claimed invention. In any event, Matsuda et al. cannot be relied upon to show the subject matter upon which the outstanding rejection is based. Reconsideration and withdrawal of these grounds of rejection is respectfully requested.

Further to the above discussion, the Examiner admits that Matsuda et al. does not disclose an air bearing device and a coating film for rust prevention as recited in the present claim 1, and that the coating film is made of ceramics as recited in the present claim 2. The Examiner has thus proposed a combination of Matsuda et al. with Broghammer, who discloses a coordinate measuring instrument including an air bearing, and Tano, who discloses a measuring device that consists of a coating film formed on a surface for rust prevention.

The Broghammer and Tano references have been considered. It is respectfully submitted that there would be no motivation for combining these references with Matsuda et al. The Examiner states that Broghammer's air bearing would reduce friction during the use of the machine. However, there is no reason,

apart from the present invention, to add an air bearing to a table 4 that will be clamped and held in a fixed location, as taught by Matsuda et al. Since Matsuda et al. fails to disclose a slidable workpiece on a table, as is required by the present claim 1, there would be no friction and therefore no reason to add an air bearing to reduce friction.

In view of the above, there is no way that a further combination of Matsuda et al. with Broghammer would result in a "movable body slidably provided via an air bearing device on the guide surface of the guide rail," as is required by claim 1. So even if such a combination could somehow be contemplated, it would still fail to include all of the features of the presently claimed invention.

As for the coating film of Tano, this reference discloses a "gauge block" to be employed as a standard for measuring an accurate length dimension. It is not clear how a gauge block is to be combined with a measurement machine such as Matsuda et al. It is respectfully submitted that a gauge block, having an anti-rust coating applied thereto, would not provide any disclosure or suggestion that would lead a skilled person into a combination with a measurement machine. Indeed, it would appear that such a combination would result in an inoperable device. Thus, there is no motivation for a combination of this reference with Matsuda et al.

The above notwithstanding, claim 1 requires that the present coating film for rust prevention is formed on the guide surface. However, since Matsuda et al. cannot be relied on to show a "guide surface on which the movable body is slidably supported," as recited in claim 1, even if Tano could be combined with Matsuda et al. as proposed by the Examiner, the combination would not include all of the features of the presently claimed invention.

In view of the above, it has been shown that the references relied upon by the Examiner, taken alone or in combination, fail to meet the requirements of the present independent claim 1. The dependent claims recite additional limitations that also cannot be shown from the prior art. The dependent claims are considered allowable for at least the same reasons as independent claim 1. Therefore, it is respectfully submitted that the present amended claims patentably distinguish over the prior art. Reconsideration and withdrawal of the outstanding grounds of rejection is therefore respectfully requested.

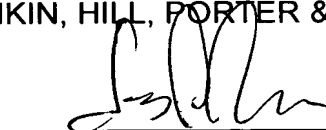
In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, the Examiner is invited to initiate a telephone interview with the undersigned to expedite prosecution of the present application.

If there are any additional fees resulting from this communication, please charge same to our Deposit Account No. 18-0160, our Order No. KIN-15462.

Respectfully submitted,

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